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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/676,116	10/02/2003	Seong Woon Kim	123056-05004412	6033
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43569	7590	09/18/2006
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EXAMINER

STIGLIC, RYAN M

ART UNIT	PAPER NUMBER
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2112

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,116	KIM ET AL.	
	Examiner	Art Unit	
	Ryan M. Stiglic	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-9 are pending and have been examined.
2. Claims 1-9 are rejected.

Response to Arguments

3. The rejection of claims 1-9 under 35 U.S.C. § 112, first paragraph has been withdrawn in light of applicant's amendment to independent claim 1.
4. Applicant's arguments filed May 18, 2006 have been fully considered but they are not persuasive. In response to applicant's arguments that "Philbrick does not teach or suggest that the sequencer reads data to be transmitted to the network" and "processor 44 in Philbrick is required because it implements packet transmission, however in the present invention, the TOE transmits the packets so there is no need for a processor" the previous grounds of rejection dated March 21, 2006 are maintained.

Paragraphs [0005] through [0008] of applicants originally filed specification state TOE(s) are well known in the art and have been disclosed in U.S. Patent No. 6,427,173, application serial number 09/464,283. The Philbrick reference used to reject claims 1-9 (U.S. Publication No. 2001/0037406) incorporates the disclosure of application serial number 09/464,283 by reference (see paragraph [0001]). Both the Philbrick reference and the '173 Patent refer to the network card containing the TOE as an INIC. Figure 13 of the '173 Patent and figure 16 of the Philbrick reference disclose the almost identical circuit structure of the INIC which includes the TOE as admitted by applicant in paragraphs [0005] through [0008] of the originally filed specification. The Philbrick reference is a direct contradiction to applicant's specification

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paragraph [0009] which states “The conventional art in which the TOE is used does not include disk access for transmitting the streaming data so that a host processor is overloaded in transmitting the streaming data” because figure 1 of Philbrick clearly illustrates an INIC (including the TOE circuitry from the ‘173 Patent) including disc access for transmitting streaming data so that a host processor (Philbrick, Fig. 1, 30) is not overloaded.

Insofar as the conventional TOE (‘173 Patent) from applicant’s admitted prior art is composed of the same circuitry and performs the same functions as the INIC circuitry of the Philbrick reference (With the exceptions of the DMA 68, INIC I/O CNTRL 72 and INIC STORAGE UNIT 70 in Fig. 1 of Philbrick that are used to provide disc access without overloading a host processor) applicant’s arguments relating to Philbrick failing to teach a TOE are not persuasive. Furthermore, applicant’s argument that the “processor 44 in Philbrick is required because it implements packet transmission, however in the present invention, the TOE transmits the packets so there is no need for a processor” is not persuasive because the processor 44 is a feature of the TOE admitted by the applicant to be disclosed in the ‘173 Patent (see figures 13 of the ‘173 Patent and 16 of the Philbrick reference).

In response to applicant’s arguments that “the memory 48 in Philbrick cannot read data in storage, transmit it without interference of a CPU directly to the network and the plurality of data cannot be transmitted in the form of zero copy” the Examiner respectfully disagrees. The Examiner understands zero copy to mean a transfer of data without direct interference of a CPU. Philbrick discloses [0087], “The INIC 622 then sends a request for the data over the network 644... The frames are received by the INIC 622, processed by the INIC 622 sequencers... and reassembled as a 64 KB file stream in the INIC file cache... The INIC 622 employs scatter-gather

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list to read data packets from its file cache, which are prepended with IP/TCP/NetBios/SMB headers created by the INIC based on the server CCB, and sends the resulting frames onto the network.” Therefore the Philbrick reference discloses transmitting data via zero copy methods.

In light of applicant’s unpersuasive arguments, the rejection of claims 1-9 over 35 U.S.C. § 102(b) as being anticipated by Philbrick is maintained.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Philbrick et al. (US20010037406A1).

For claim 1, Philbrick discloses:

A network-storage apparatus (Fig. 1, ‘INIC’ 22; paragraph [0042]) for high-speed streaming data transmission through a network, the apparatus comprising:

- an internal peripheral device bus separated from a peripheral device bus outside the network-storage apparatus, for transmitting data between devices inside the network-storage apparatus (Fig. 1, 48; [0043]);
- a peripheral device bus bridge for transferring bus transaction from a host processor to the internal peripheral device bus and transferring bus transaction for a host processor

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executing inside the network-storage apparatus or a main memory to a bus bridge (Fig. 1, 50; [0043]);

- a disk controller for controlling a plurality of disc storage connected to the network-storage apparatus and managing reading and writing data from and to the disc storage (Fig. 1, 72; [0045]);
- a peripheral memory for storing transmitted data between the disc storage and the network (Fig. 1, 46; [0043]);
- a peripheral memory controller for controlling the peripheral memory and storing or outputting the transmitted data between the disc storage and the network ([0053]; and
- a TOE for reading data to be transmitted to the network from the peripheral memory, constructing the data in the form of a packet including information for network transmission ([0089] discloses a situation where a client on the network requests data stored in a peripheral memory of the server and the INIC gathers the information and sends the data packets to the client with prepended headers “it created based on the server CCB”), transmitting the packet to the network, and storing the data received from the network in the peripheral memory through the peripheral memory controller (Fig. 1, items 52,58,60; [0043-0062]);
- wherein the network storage apparatus stores the streaming data received through network on the disk storage in the form of zero copy and transmits the streaming data stored on the disk through the network in the form of zero copy, between the plurality of disk storage of an internet server computer system and a network (see section 4 above; also see Philbrick [0045, 0053, 0011-0013, 0087-0089]).

For claim 2, Philbrick discloses:

The apparatus of claim 1, wherein the peripheral device bus is a PCI bus and the peripheral device bus bridge roles a PCI bridge ([0066]).

For claim 3, Philbrick discloses:

The apparatus of claim 1, wherein the disk controller is connected to a plurality of disc storages in parallel through a disk interface bus and accesses to the data in a pipeline manner ([0111-0113]).

For claim 4, Philbrick discloses:

The apparatus of claim 1, wherein the disk controller reads and writes data from and to a plurality of disc storages in a stripping manner ([0044-0045] Where stripping is a form of RAID clearly covered by the scope of the word RAID).

For claim 5, Philbrick discloses:

The apparatus of claim 1, wherein the peripheral memory controller constructs a memory table so as to cache data transmitted from and to the network ([0045-0046,0055,0059-0060,0110] etc.).

For claim 6, Philbrick discloses:

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The apparatus of claim 1, wherein the peripheral memory controller is provided a register for indicating size of the peripheral memory inside the peripheral memory controller, and transmits a great deal of data in a DMA manner ([0110,0052-0053]).

For claim 7, Philbrick discloses:

The apparatus of claim 1, wherein the peripheral memory controller deletes contents of a memory table thereof when finishing accessing to the peripheral memory ([0045-0046,0055,0059-0060,0110]).

For claim 8, Philbrick discloses:

The apparatus of claim 1, wherein the TOE creates a DSB table having information on packet data to be transferred to the disk immediately among data packets received from the network, transmitting a data packet to the peripheral memory to store the data packet if the data packet storable in the disk has information matching DSB, and transmitting a data packet to a general network stack otherwise ([0043-0062]).

For claim 9, Philbrick discloses:

The apparatus of claim 1, wherein the TOE reads data to be transmitted to the network from the peripheral memory, constructs the data in the form of a packet and transfers the data packet to the network when the data to be transmitted is stored in the peripheral memory and the TOE receives a data transmission instruction from a host processor ([0043-0062]).

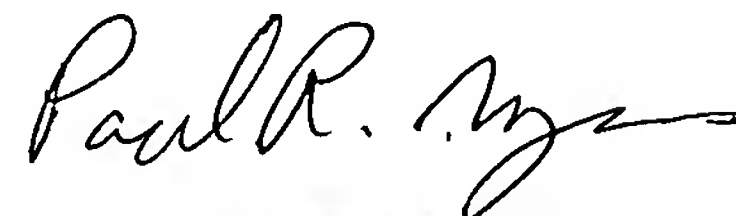
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan M. Stiglic whose telephone number is 571.272.3641. The examiner can normally be reached on Monday - Friday (6:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on 571.272.3676. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RMS


PAUL R. MYERS
PRIMARY EXAMINER